# News release

## Space balloon project

24 June 2002

The Met Office is set to predict weather conditions in the stratosphere using live three-day forecasts for this summer's edge-of-space balloon attempt by British pilots Colin Prescot and Andy Elson. Experience gained from these forecasts is expected to help the development of unmanned communication airships, which could replace certain costly satellites within 5-10 years.

For many years, the Met Office has been running numerical models to predict air motion in the upper stratosphere for research purposes. Dave Underwood, Head of Civil Aviation Services at the Met Office, says, "For a few years now, the Met Office has been advising airship companies about wind and temperature climatology in the stratosphere. The experience we have gained by producing live three-day forecasts for the space balloon project could enable unmanned telecoms airships to be put into the stratosphere as a low-cost, efficient alternative to communication satellites. This project will, for the first time, enable us operationally to verify our forecasts in the stratosphere."

The Met Office's stratospheric model measures winds and temperatures from the ground to the upper atmosphere at approximately 1.3 km intervals. The model will be used this summer to predict the ideal weather opportunity for the launch of the record-breaking attempt to fly the QinetiQ 1 helium balloon to the edge of space.

The weather and stratospheric conditions are paramount to the success of the flight. The two pilots, Andy Elson and Colin Prescot, will attempt to break the world record and take the QinetiQ 1 balloon up to 132,000 feet - twice as high as Concorde's cruising altitude. Visibility, air stability, wind speed and direction are just some of the conditions that the Met Office will have to monitor in order to predict the ideal moment for the launch. The flight is scheduled to take place sometime in July, August or September 2002.

The QinetiQ 1 attempt is being supported by the Met Office, which is also working with the University of Reading to predict the trajectory of the balloon. Atmospheric data will be provided by the Met Office, which will be manipulated on the University's trajectory model to calculate the balloon's movement. Once the trajectory of the balloon has been mapped, the Met Office will provide further atmospheric details at several points along the route. The atmospheric data from the Met Office will include inputs from their stratospheric model as well as surface, radiosonde (weather balloon) and satellite observations.

The two QinetiQ 1 pilots have already set the world endurance record for any aircraft in the Earth's atmosphere, when they flew their hot-air balloon from Spain to the Pacific in 17 days, 18 hours and 25 minutes as part of their round the world challenge. After this attempt they were awarded the Royal Aero Club Gold medal, which had been presented only 40 times since 1908. Previous winners include Louis Bleriot, the Wright Brothers, Alcock and Brown and Neil Armstrong.

The current record holders for taking a balloon into space are two US Navy officers, who reached a world record height of 113,740 feet in 1961.

Notes

Met Office:
Stratospheric telecoms airships could hover at altitudes of up to 70,000 feet, just above the jet stream, beaming communication signals over a 19,000 square-kilometre area and carrying payloads of up to six metric tons. Many of these ships are designed to run on regenerative fuel systems, which combine solar power during the day and fuel cells at night. Electric motors power slow-turning propellers that help keep the airship platforms stationary.

The stratospheric model has recently been improved by taking account of the full spectrum of gravity waves in the stratosphere and above. Computing the effects of the gravity waves was developed at the Centre for Atmospheric Science at Cambridge University.

The trajectory model was developed by Dr John Methven at Reading University for the UK Universities Global Atmospheric Modelling programme, a national programme conducting fundamental research into atmospheric science, funded by the Natural Environment Research Council.

The Met Office recognises that thriving organisations need to remain at the forefront of technology and innovation. Met Office scientists are continually developing and improving systems for the benefit of customers. Examples of Met Office innovation include the development of a Braille weather chart, a severe weather warning model, a weather and health service, which predicts rises in weather-related illnesses, and research on weather-related consumer behaviour.

QinetiQ:
QinetiQ, formerly the larger part of DERA (Defence Evaluation and Research Agency) incorporates the bulk of the MoD's non-nuclear research, technology and test and evaluation establishments in its heritage. QinetiQ is one of Europe's largest science and technology solutions providers. Among its staff it employs many leading scientists and internationally acclaimed experts. It offers a unique range of services, consultancy advice and test facilities. These include indoor and outdoor ranges for air-, land- and sea-launched weapon effectiveness trials, wind tunnels, underwater target ranges and marine testing facilities, automotive test tracks and climatic testing laboratories.

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